

Title: Analysis of multidimensional measurements of electromagnetic waves in the Earth's magnetosphere

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Abstract:

The thesis introduces into basic knowledge of waves in plasma, especially waves in the Earth's magnetosphere. There are mentioned some space projects focused on chorus waves. The second part of this thesis is a laboratory study of ELMAVAN device that is being developed within Resonance project. The main part of the thesis describes methods of onboard processing of measured LF electromagnetic field data and implementation of calculations in Field Programmable Gate Array. An important part of the thesis is a preparation of input data required for testing and verification of the FPGA program.

Keywords: waves in plasma, chorus wave, Resonance project, ELMAVAN, FPGA